

Description

Process For Capturing Heat From Aerobic Compost

BACKGROUND OF INVENTION

[0001] While many people have recognized that compost heats and that it would be nice to be able to capture and harness that heat, the problem has been how to efficiently capture the surplus microbial metabolic heat from the compost. The claimed invention solves that problem, capturing nearly all the Surplus Microbial Metabolic Heat from the compost.

SUMMARY OF INVENTION

[0002] The Invention is a process, to capture the surplus microbial metabolic heat from active aerobic compost by routing the hot off-gas from forced aeration which has gone through the active compost, through a heat exchanger.

BRIEF DESCRIPTION OF DRAWINGS

[0003] In Fig. 1 A. represents actively composting mass, whether

it be in any sort of vessel, windrows, or other shape pile covering a few square yards, or acres, B. Represents a heat exchanger, C. Represents a blower, in Fig. 1, pulling the air through both the compost and the heat exchanger. The blower can just as easily be located between the compost and the heat exchanger. The location of the blower is not critical to the process, as long as the blower moves the air through the compost, and the heated off gas from the compost is then routed through the heat exchanger. D. is a blower or pump that moves any kind of gas, air, or fluid through the secondary side the heat exchanger. E. Represents the heated air, gas or fluid coming out the secondary of side the heat exchanger; F Represents a drain to take off condensate from the cooling off-gas from the compost, which would otherwise flood the heat exchanger, and block the flow of compost heated off gas from the forced aeration; G Represented as a diamond, is a valve or other means of regulating the rate of air flow through the compost to , enable providing oxygen for the microbes, and not excessively cooling the compost below the temperature range for the microbes that are doing the decomposing, and, in the process, generating the heat. The outlined arrows represent the movement of the pri-

mary air from the forced aeration coming though the compost, then through the heat exchanger. The line arrows from D, to E, represent the flow of air, gas, or fluid going to and from the secondary side of the heat exchanger.

DETAILED DESCRIPTION

[0004] The Invention is a process / method for capturing the Surplus Microbial Metabolic Heat from aerobic composting. The off gas from forced aeration is directed through the primary side of a heat exchanger. Whether compost is in a vessel of any sort, or a pile on the ground covering a few square yards or acres does not affect the fundamental process. The heat exchanger, and any low points in ducts that carry the off-gas from the compost must have a means to drain off condensate from cooling off-gas from the compost. The drains consist of U tubes with the secondary side of the U being lower than the primary side by at least 2 times the air pressure moving the off-gas from the compost through the heat exchanger, and condensate in the bottom of the U to prevent air from moving through the drain. Another blower or pump, D in Fig. 1, moves air, gas or any other fluid through the secondary side of the heat exchanger, so that the fluid, E in Fig. 1, has been

heated as it passed through the secondary side of the heat exchanger. The rate of air flow through the compost is regulated by a valve, G in Fig. 1, to enable balancing the heat extracted with the rate of Surplus Microbial Metabolic Heat being generated by the microbes doing the composting.